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Atty. Dkt. No. 041673-2113

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-57 (Cancelled).

58. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;
 - (ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and
 - (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;
- (d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;
- (e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector; and,
- (f) means for producing at least one secondary composite signal by adjusting detector signals from each secondary detector by applying signal adjustment coefficients thereto, wherein

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the coefficients have been selected to compensate for detector failure, detector drift, variations between biological microenvironments occupied by each secondary detector, and similarities between biological microenvironments occupied by secondary detectors and primary detectors with which they may be associated.

59. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;
 - (ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and
 - (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the signals from each primary detector applies weighting factors to determine the primary composite signal.

60. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;

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(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the signals from each primary detector applies temporal factors to determine the primary composite signal.

61. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

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(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector; and,

(e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector;

wherein the means for adjusting the signals from each secondary detector applies weighting factors to determine a secondary composite signal.

62. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector; and,

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(e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector;

wherein the means for adjusting the signals from each secondary detector applies temporal factors to determine a secondary composite signal.

63. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;
 - (ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and
 - (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration; and,
- (d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;

wherein the at least one confounding phenomenon comprises the rate of perfusion of biological fluid.

64. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;

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(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration; and,

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;

wherein the at least one confounding phenomenon comprises the rate of flow of biological fluid perfusing the biological environment.

65. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

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(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration,

wherein the signal processing means utilizes predetermined algorithms including adjustment of detector signals according to weighting factors.

66. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for adjusting the signals from each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector;

(ii) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors; and

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration

wherein the signal processing means utilizes predetermined algorithms including adjustment of detector signals according to temporal factors.

67. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

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(b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the estimated analyte concentration associated with each primary detector applies weighting factors to determine the primary composite signal.

68. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

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(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the estimated analyte concentration associated with each primary detector applies temporal factors to determine the primary composite signal.

69. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

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(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the signals from each secondary detector applies weighting factors to determine the secondary composite signal.

70. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

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(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the signals from each secondary detector applies temporal factors to determine the secondary composite signal.

71. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the at least one confounding phenomenon comprises the rate of perfusion of biological fluid.

72. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

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- (a) a housing;
- (b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,
- (d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:
 - (i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,
 - (ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and
 - (iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and
 - (iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the at least one confounding phenomenon comprises the rate of flow of biological fluid perfusing the biological environment.

73. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least one primary detector disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) a plurality of secondary detectors disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment of at least one primary detector; and,

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(d) signal processing means in communication with each individual detector for receiving a signal therefrom, said signal processing means comprising:

(i) means for adjusting the signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and,

(ii) means for estimating the analyte concentration in the biological microenvironment of each individual primary detector; and

(iii) means for adjusting the estimated analyte concentration associated with each primary detector by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift, variations between the biological microenvironments occupied by each detector, and confounding phenomena; and

(iv) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the signal processing means utilizes predetermined algorithms including adjustment of detector signals according to temporal factors.

74. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;

(ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

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(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;

(e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector; and,

(f) means for producing at least one secondary composite signal by adjusting detector signals from each secondary detector by applying signal adjustment coefficients thereto, wherein the coefficients have been selected to compensate for detector failure, detector drift, variations between biological microenvironments occupied by each secondary detector, and similarities between biological microenvironments occupied by secondary detectors and primary detectors with which they may be associated.

75. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;

(ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

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wherein the means for adjusting the signals from each primary detector applies weighting factors to determine the primary composite signal.

76. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;
 - (ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,
 - (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

wherein the means for adjusting the signals from each primary detector applies temporal factors to determine the primary composite signal.

77. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

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- (i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;
- (ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,
- (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;
- (d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector; and,
- (e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector;

wherein the means for adjusting the signals from each secondary detector applies weighting factors to determine a secondary composite signal.

78. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;
 - (ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

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(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration;

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector; and,

(e) signal processing means in communication with each individual secondary detector for receiving a signal responsive to the presence of a confounding phenomenon in the biological microenvironment occupied by at least one primary detector, and a signal responsive to the magnitude of a confounding phenomenon in the biological microenvironment occupied by the secondary detector;

wherein the means for adjusting the signals from each secondary detector applies temporal factors to determine a secondary composite signal.

79. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;

(ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration; and,

(d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;

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wherein the at least one confounding phenomenon comprises the rate of perfusion of biological fluid.

80. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;
- (c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:
 - (i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;
 - (ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,
 - (iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration; and,
- (d) at least one secondary detector disposed on the housing, wherein each secondary detector is adapted to produce a signal responsive to one or more confounding phenomena in the biological microenvironment occupied by at least one primary detector;

wherein the at least one confounding phenomenon comprises the rate of flow of biological fluid perfusing the biological environment.

81. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

- (a) a housing;
- (b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

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(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;

(ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration,

wherein the signal processing means utilizes predetermined algorithms including adjustment of detector signals according to weighting factors.

82. (New) A device for estimating the concentration of an analyte in a biological environment, said device comprising:

(a) a housing;

(b) at least two primary detectors disposed on the housing, wherein each primary detector is adapted to produce a signal responsive to the concentration of the analyte in the immediate biological microenvironment;

(c) signal processing means in communication with each individual primary detector for receiving a signal therefrom and estimating the concentration of the analyte in the biological environment from the signals said signal processing means employing one or more predetermined algorithms, said signal processing means comprising:

(i) means for estimating the analyte concentration in the biological microenvironment of individual primary detectors;

(ii) means for adjusting the analyte concentration estimates by applying signal adjustment coefficients thereto, wherein the coefficients compensate for detector failure, detector drift or variations between the biological microenvironments occupied by each detector; and,

(iii) means for estimating the concentration of the analyte by mathematical calculation of a primary composite signal indicative of said analyte concentration

wherein the signal processing means utilizes predetermined algorithms including adjustment of detector signals according to temporal factors.

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REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

A. Claim Amendments.

Claims 1-57 are requested to be cancelled.

Claims 58-82 are being added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 58-82 are now pending in this application. The new claims are all supported by the Specification, as shown below:

New Claim Number	Example of Specification Support
58	Original claims 1 and 3-6
59	Original claims 1 and 8
60	Original claims 1 and 9
61	Original claims 1, 3-5 and 10
62	Original claims 1, 3-5 and 11
63	Original claims 1, 3 and 17
64	Original claims 1, 3 and 18